



US 20210294104A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2021/0294104 A1**  
(43) **Pub. Date: Sep. 23, 2021**(54) **ELECTRONIC DEVICE WITH FACIAL SENSORS**(71) Applicant: **Apple Inc.**, Cupertino, CA (US)(72) Inventors: **Muhammad F. Hossain**, Sunnyvale, CA (US); **Samuel A. Resnick**, San Francisco, CA (US)(21) Appl. No.: **17/147,147**(22) Filed: **Jan. 12, 2021****Related U.S. Application Data**

(60) Provisional application No. 62/990,792, filed on Mar. 17, 2020.

**Publication Classification**(51) **Int. Cl.**  
**G02B 27/01** (2006.01)  
**G06K 9/00** (2006.01)  
**G06F 3/01** (2006.01)(52) **U.S. Cl.**CPC ..... **G02B 27/0172** (2013.01); **G06K 9/00288** (2013.01); **G02B 2027/0138** (2013.01); **G06F 3/011** (2013.01); **G06K 9/00255** (2013.01)(57) **ABSTRACT**

A system may include a head-mounted device. The head-mounted device may have a head-mounted housing that includes a display. The display is configured to display an image for viewing by a user when the user's eyes are located in eye boxes adjacent to the head-mounted housing. The head-mounted housing may have a compressible opaque light seal. The light seal may have a ring shape and may block stray ambient light around the periphery of the head-mounted housing, thereby ensuring that stray light does not interfere with viewing of the image by the user. Sensors may be provided in the light seal to measure facial expressions and gather other measurements. Information on a measured facial expression of a user can be transmitted to external devices so that the external devices can update corresponding facial expressions on an avatar to reflect the user's current facial expression.

